

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**LISTING OF CLAIMS:**

Claims 1-5 (Canceled)

6. (New) An insulated gate bipolar transistor, comprising
  - a semiconductor substrate having a top and a bottom surface, a gate insulation film formed on the top surface, said gate insulation film comprising at least one contact opening,
  - said semiconductor substrate comprising
    - an emitter layer of first conductivity type adjoining said bottom surface,
    - a drift region of second conductivity type adjoining said emitter layer,
    - a channel region of first conductivity type with a doping concentration  $p_C$  formed in the drift region underneath the contact opening and underneath part of the gate insulation film ,
    - one or more source regions of second conductivity type disposed in the channel region and delimiting a base contact area;
  - a gate electrode formed on the gate insulation film,
  - a bottom metallization layer formed on the bottom surface,

- a top metallization layer covering the contact opening and being contacted by one or more source regions,

wherein

- a first base region of first conductivity type with a doping concentration  $p_{B1}$  is disposed in the channel region so that it encompasses the one or more source regions, wherein
- at least one common boundary line on the top surface is formed by the first base region, the one or more source regions and the channel region on the top surface, wherein
- the doping concentration  $p_{B1}$  of the first base region is higher than the doping concentration  $p_C$  of the channel region, wherein
- a second base region with a doping concentration  $p_{B2}$  of first conductivity type is confined in the semiconductor substrate to a region underneath the base contact area so that it partially overlaps with the channel region and with the first base region, and wherein
- the doping concentration  $p_{B2}$  of the second base region is higher than the doping concentration  $p_C$  of the channel region.

7. (New) The insulated gate bipolar transistor as claimed in claim 1, wherein a depth  $d_{B2}$  of the second base region exceeds a depth  $d_C$  of the channel region by at least a factor of 1.5, i.e.  $d_{B2} > 1.5 d_C$ .

8. (New) The insulated gate bipolar transistor as claimed in claim 1, wherein a doping concentration  $p_{B1}$  of the first base region and a doping concentration  $p_{B2}$  of

the second base region (82) are at least 5 times higher than a doping concentration  $p_C$  of the channel region (7), i.e.  $p_{B1} > 5.0 p_C$ ,  $p_{B2} > 5.0 p_C$ .

9. (New) The insulated gate bipolar transistor as claimed in claim 1, wherein at least one protection region of second doping type is disposed in the drift region underneath the gate oxide layer, said at least one protection region adjoining both the channel region and the top surface of the semiconductor substrate.

10. (New) The insulated gate bipolar transistor as claimed in claim 1, wherein a thickness of the gate insulation film increases at a distance  $l$  from the contact opening.